

## REMARKS/ARGUMENTS

Claims 1-84 remain in this application. Claims 1, 46, 48, 59 and 65 are amended.

In order to simplify the examination of this response, the following remarks follow the flow of the office action

### Double Patenting

The office action paragraph 2, states, " *I. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).*

*A timely filed terminal disclaimer in compliance with 37 CAR 1.321 (c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CAR 1.130(b).*

*Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CAR 3.73(b).*

The office action paragraph 2, states, "Claims 1-6, 8-10, 15-23, 25-26, 46-47, and 59-61 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4-9, 12-20 of copending Application No.09/158429 ('429). Although the conflicting claims are not identical, they are not patentably distinct from each other because only difference between the present application and the '429 is that the claims of the present application are of the broader form than that of the claims of the '429. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the '429 into the present application in order to improve the computing speed since some operating steps are not employed.

*'This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.*

The office action paragraph 3, states, "Claims 12-14, 27-45, 48-54, and 62-84 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-87 of copending Application No.09/158425 ('425). Although the conflicting claims are not identical, they are not patentably distinct from each other because only difference

*between the present application and the '425 is that the claims of the present application are of the broader form than that of the claims of the '425. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the '425 into the present application in order to improve the computing speed since some operating steps are not employed.*

*This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.*

Examiner in a telephone response appears to have indicated that reference to Application No.09/158425 ('425) is actually reference to 09/186,245, and the reference to copending Application No.09/158429 ('429 ) is actually reference to 09/186,249. Because of this confusion the following arguments will show the differences of the main independent claim of these three from one another.

In response, applicants respectfully traverse the double patenting rejection. There are three applications having application numbers: 09/186,245, 09/186,247, and 09/186,249. These are commonly owned with common inventors filed on a common date. Each of these inventions solves and claims a similar problem in a separate non-overlapping novel, patently distinct way. Since all these claim ultimately depend on claim 1, it should suffice to show the differences in claim 1 of each of these three cases.

Amended claim 1 of the present application 09/186,247 reads:

1.. A method for digitally processing transform data representing a phenomenon, the method comprising:  
performing an inverse transform of said transform data to the real domain  
forming high-precision numbers; and  
directly manipulating said high-precision numbers without first converting the high precision number to integers to produce an effect.

Claim 1 of the application 09/186,245 reads:

1. A method for digitally processing transform data representing a phenomenon, the method comprising:
  - performing an inverse transform of said transform data to the real domain forming high-precision numbers;
  - converting said high-precision numbers to integers and clipping the integers to an allowed range forming initial converted data;
  - subtracting said converted data from said high-precision numbers forming high-precision differences;
  - forward transforming said initial converted data forming transformed converted data;
  - forward transforming said high-precision differences forming transformed differences; and
  - adding said transformed differences to said transformed converted data forming corrected transformed data.

Claim 1 of the application 09/186,249 reads:

1. A method for digitally processing transform data representing a phenomenon, the method comprising:
  - performing an inverse transform of said transform data to the real domain forming initial high-precision numbers;
  - converting said initial high-precision numbers to integers and clipping the integers to an allowed range forming initial converted data;
  - subtracting said converted data from said initial high-precision numbers forming high-precision differences;
  - manipulating said initial converted data to produce an effect and forming processed converted data; and
  - adding said high-precision differences to said processed converted data forming processed high-precision numbers.

Applicants agree with the statement that the allegedly conflicting claims “are not identical.” Applicants request review of the elements of these independent claims, which clearly shows the differences between these claimed inventions. One is not broader than the other, but rather a different solution of how a similar problem is solved differently. Indeed

claim 1 of 09/186,245 does not encompass or make obvious claim 1 of 09/186,247, or vice versa. Similarly, claim 1 of 09/186,249 does not encompass or make obvious claim 1 of 09/186,245, or vice versa. Each solves the problem by entering differing points within the prior practice as extensively described in their respective specifications. Furthermore each operates on different sets of numbers in different ways. The points of entry and operations of each separate invention is clearly shown in the figures of the specification as described in their respective specification. Thus each is patentably distinct from the other. It would thus not be obvious to one having ordinary skill in the art at the time the invention was made to modify one into the other. Each invention has particular advantages and is particularly useful to solve a problem depending upon for example, on a particular availability of different input/output ports, different software and/or different equipment. Furthermore, the usefulness of the present application is indeed not (just) in order to improve the computing speed (even when such desired improvement results). The present application doesn't skip some operating steps of the other (or vice versa) but each replaces the steps of one with other steps as claimed. Thus claim 1 and claims 2-6, 8-10, 15-23, and 25-26 which depend thereon are patently distinct from the claims in 09/186,245. Similar arguments are made for system claims 46-47, and 59-61, and method claims 12-14, 27-45, 48-54, and 62-84. So claims 46-47, and 59-61 are patently distinct from the claims in 09/186,245 and in 09/186,249. So no disclaimer appears to be required.

In order to further support the differences of the invention claimed, applicants submit the following overview of the three separate inventions. It is observed that if the wording in these overviews are inadvertently in any conflict with wording in the applications, the wording in the applications shall continue to govern.

Serial Number 09/186,247, Docket YOR9-1998-0331 provides for keeping extra reconstructed output precision so that the rounding/truncating error is not present in the data to be re-transformed and re-quantized. Since the inverse quantization step reconstructs the coefficients in the middle of the quantization zone, small errors from

the finite precision inverse and forward transformations are not sufficient to move into a neighboring quantization value if the data is unchanged. This solution required all processing to be handled with greater precision too. The forward transform expected the extra precision.

Serial Number 09/186,249, Docket YOR9-1998-0373 provides for following the traditional rounding/truncating but keeping a version (or the error created by the rounding) with extra precision in the real domain too. Then after traditional image processing of the integer values, the extra precision version is used if the processing did not change the integer values (or the error added back into the integer values). Otherwise, the modified integer values are converted to extra precision and used. The forward transform expected the extra precision.

Serial Number 09/186,245, Docket YOR9-1998-0372 provides for following the traditional rounding/truncating but taking the error from quantizing to integers and transforming it back to the transform domain. This removed the need for operating on the extra precision in the real domain or keeping a second extra precision copy in the real domain. After traditional image processing and transformation of the integer values to the transform domain, the transformed error could be used to determine if a change in the quantized coefficients was due to the error or to a modification of the real domain data. Applicant's representative plans to provide a disclaimer if the Examiner still requires it.

**Claim Rejections - 35 U.S. C § 102**

The office action further states, "*The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless -- ... (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior*

to the date of application for patent in the United States. (e) ..... filed by another who ...

The office action paragraph 4, states, "Claims 1-3, 8-9, 15-16, 18-19, 21-22, 25, 46-49, 59-61 and 65-66 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6178205 to Cheung et al. ("Cheung").

As to claim 1, Cheung discloses a method for digitally processing transform data representing a phenomenon, the method comprising: performing an inverse transform of said transform data to the real domain forming high-precision numbers (Fig. 1 element 110 col. 4 lines 55-56 and col. 7 note that all the real domain data include fraction parts) ; and manipulating said high-precision numbers to produce an effect (Fig. 1 elements 120 and 130, note that the effect can be ghost-reduction etc.).

As to claims 2-3 and 16, Cheung further discloses a method as recited in claim 1, further comprising converting said high-precision numbers to integers and clipping the integers to an allowed range forming converted image (col. 10, lines 30-46).

As to claims 8 and 25, Cheung further discloses fraction parts (col. 7, table 2).

As to claims 9 and 22, Cheung further discloses IDCT(col. 4, lines 55-56).

As to claim 15, Cheung further discloses inverse quantization (Fig. 1 element II 5).

As to claims 18-19, Cheung further discloses the coded data are image and video data (col. 2, lines 23-39).

The office action further states, " As to claim 21, Cheung further discloses MPEG (col. 3, line 60).

As to claims 46-49, 59-61, 65-66 the claims 46-49, 59-61 and 65-66 are the corresponding system, article of manufacture, and program storage device claims to claims 1-3, and 15. The discussion are addressed with regard to claims 1, 3, and 15.

In response, applicants respectfully indicate that the cited art does not anticipate the inventions as claimed, in as much that to applicants knowledge all cited art employs pixels and/or integer data (not the claimed high precision numbers) to perform data manipulations. However in order to bring the case to allowance quickly, claims 1, 46, 48, 59 and 65 are amended to more clearly show that the method, system, product and/or article comprises "directly manipulating said high-precision numbers without first converting the high precision number to integers to produce an effect".

it is noted that Cheong in US Patent 6,178,205 , "Video Postfiltering with Motion-compensated Temporal Filtering and/or Spatial Adaptive Filtering," by Sen-ching S. Cheung, David Drizern, and Paul E. Haskell, is not relevant to claim 1

(or any of the other claims in the present application). Cheong's patent appears to be improving the appearance of video images by motion-compensated temporal filtering and spatial adaptive filtering. The "errors" referred to in Cheung are from the original quantization. Cheung is trying not to introduce "further degradation" (col 2 line 20) while removing artifacts and noise. Cheong does not do the step of directly manipulating said high-precision numbers without first converting the high precision number to integers to produce an effect. Thus all claims 1-3, 8-9, 15-16, 18-19, 21-22, 25, 46-49, 59-61 and 65-66 as amended and/or because each ultimately depends on an amended claim are allowable over Cheung.

The office action further states, " 5. Claims 12, 26-29, 31-32, 36, 38, 45, 50- 51, 62, 67-68, and 70-72 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5544266 to Koppelmans et al. ("Koppelmans").

*As to claim 12, Koppelmans discloses a method for digitally processing transform video data in the real domain representing a phenomenon, the method comprising: performing an inverse transform of said transform data to the real domain forming high-precision numbers (Fig. 1 element 10); and performing a forward transform of said high-precision numbers (Fig. 1 element 31).*

In response, applicants respectfully indicate that independent method and product claims 12, 27, 62, 67 include "performing a forward transform of said high-precision numbers." Similarly independent systems claims 38, 50 include "transforming high precision numbers." These are not in Koppelmans which uses the standard and the standard is integers not high precision numbers. Koppelmans col 1, lines 21-27 refers to another standard and a tradition decoder which works on integers per color component. Koppelmans uses standards. All video standards known to applicants [MPEG1,-2,] employ integer representations of a picture in memory. None perform "a forward transform of said high-precision numbers" as in claims 12,26-29, 31-32, 36, 38, 45, 50- 51, 62, 67-68, and 70-72. Koppelmans', Fig 1, element 10 is an inverse quantizer operating on integers and creating integers, and element 31 is a transformer operating on integers and creating integers with quantizer 32. The integers input to 31

already have errors introduced by operating on integer data rather than high precision data as in claim 12 of the present invention.

Furthermore Koppelman, col 6, 38-39, --input 29, a predetermined number of bits thus forming a picture element or pixel,--" makes it clear that he is not working with high precision numbers, and thus does not allude to the present invention. Also, Koppelman's col 5 line 47 ... " translate from one standard to another standard, which has to be integers. Applicants do not find any reference in Koppelman's which mentions or alludes to high precision data. Thus claims 12, 26-29, 31-32, 36, 38, 45, 50-51, 62, 67-68, and 70-72 are allowable over Koppelman's.

The office action further states, " *As to claims 27 and 36, Koppelman's discloses a method for digitally processing transform-coded video data representing a phenomenon, the method comprising:*

*performing an inverse quantization of the transform-coded data forming transform data (Fig. 1 element 10); performing an inverse transform of said transform data to the real domain forming high-precision numbers (Fig. 1 element 11);*

*performing a forward transform of said high-precision numbers forming forward transformed data (Fig. 1 element 31); and*

*performing a quantization of said forward transformed data forming contest data (fig. 1 element 32).*

In response, applicants respectfully indicate that claim 27 includes "performing a forward transform of said high-precision numbers forming forward transformed data' As argued for claim 12 and in Koppelman's element 11, forms pixels and picture elements using a "predetermined number of bits ... col 6, lines 38-39, thus input 29 is an input which is integers {9 bit number} not high precision numbers. Thus claims 27 and all that depend thereupon {36 etc.} are allowable over Koppelman's.

The office action further states, " *As to claim 28, Koppelman's further discloses entropy coding and decoding (Fig. 1 element 9 and 33).*

The office action further states, " *As to claims 31-32, Koppelman's further discloses alternating steps for compression/decompression of o performing a forward transform, performing a quantization, entropy encoding, entropy decoding,*



*performing an inverse quantization, and performing an inverse transform a desired number of times (Fig. 1).*

In response, applicants respectfully indicate the arguments presented previously likewise stand for these claims.

*The office action further states, " As to claims 38, 45, 50- 51, 67-68, and 70-72, the claims 50-51, 67-68, and 70-72 are the corresponding system and program storage device claims to claims 27-28 ad 31-32. The discussions are addressed with regard to claims 27-28 and 31-32.*

In response, applicants respectfully indicate that claim 38 includes

"a first inverse transformer to produce an inverse transform of said transform data to the real domain forming high-precision numbers;  
a first forward transformer for forward transforming said high-precision numbers forming forward transformed data; and ..."

Where Koppelmans does these types of operations Koppelmans does these as in the standards on integer numbers output from his inverse tranformer Fig 1, item 11 and item 35.

Also, claim 50 includes, "a forward transformer to forward transform the high-precision numbers". Koppelman as in the standards performs forward transforms on integers not on high-precision numbers Thus all *claims 38, 45, 50- 51, 67-68, and 70-72, are the corresponding system and program storage device claims to claims 27-28 ad 31-32.*

*The office action further states, " As to claim 62, the claim 62 is the corresponding computer program product claims to claim 12. The discussions are addressed with regard to claim 12.*

In response, applicants respectfully indicate the same response as given to claim 12 applies to claim 62.

The office action further states, " *As to claims 26, 29, 41, Koppelmans further discloses manipulating the numbers to produce an effect (Fig. 1 elements 12 and 14).*

The office action further states, " *As to claims 42 and 44, Koppelmans further discloses the quantizer and inverse quantizer controlled by two unknown parameters (col. 7, lines 43-59, note that same or different quantization values could be obtained by setting the parameters).*

In response, applicants respectfully indicate that the same response as given to claim 12 applies to claims 26, 29, 41, 42, 44 and 62. Furthermore claims that depend on allowable claims are in of themselves allowable. Thus all *claims rejected under 35 U.S.C. 102* are allowable over the cited art.

#### ***Claim Rejections - 35 U.S. C, § 103***

The office action further states, "6. *The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:*

(a) *A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences --*

7. *Claims 4-7, 10-11, 17, 20, 23-24, 55-58, and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung.*

*As to claims 4-7, 10-11, 17, 20, 23-24, 55-58, and 84, Cheung does not explicitly mention the features of chroma-key merging, color correction, image rotation (90 degree), floating number, IDWT, IDFT, entropy decoding, JPEG, raster display monitor, spectral analysis, and audio data.*

*However, the examiner takes Official Notice that these features are notoriously well known in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include these features in the method of Cheung in order to improve the quality of the images.*

In response, applicants respectfully indicate their taking exception with the official notice. Indeed employing allegedly *notoriously well known in the art* in the manner of these claims is indeed not *notoriously well known in the art*. A new combination of the elements in these claims although alluding to components which are allegedly *notoriously well known in the art* in the manner of these claims is indeed patentable.

The office action may not employ hindsight in rejecting these claims. The advantages of the claimed invention are clearly described in the present specification on numerous pages. Furthermore, the Examiner is respectfully requested to support the

notice in regard to the presently claimed invention. Applicants further note that it is not well known to do these operations and/or steps on high precision numbers or data as claimed in the claims of the present invention.

Furthermore, it was shown above that Cheung does not anticipate nor is related to the present invention as claimed in directly manipulating high precision numbers. Thus with or without the official notice Cheung does not make the invention in these claims obvious. Thus claims 4-7, 10-11, 17, 20, 23-24, 55-58, and 84 are allowable over the cited art and because they ultimately depend on an allow claim.

The office action further states, "8. *Claims 13-14, 39-40, and 63-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koppelmans in view of US 5495292 to Zhang.*

*As to claims 13-14, 39-40, and 63-64, Koppelmans does not mention different transformations. Zhang, in an analogous environment, discloses a DCT followed by IDWT (Fig. 1).*

*It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the scheme of Zhang in the method of Koppelmans in order to improve the quality of the images (Zhang, col. 1, line 17 -col. 2, line 23). Doing so would reduce the blocking effect and errors in the output image so that the quality of the method is improved.*

In response, applicants respectfully indicate there is no reason to make the combination of Koppelmans and Zhang. The office action may not use hindsight to produce the presently claimed invention. Furthermore, these claims are not related to Koppelmans with or without Zang. Zang is in regard video compression for wavelets followed by the DCT, and is concerned with a bit allocation of the quantizer in the transform domain, not in the real [spatial] domain as in the present invention claimed in claims 13-14, 39-40, and 63-64. Koppelmans was shown to be working with integers and there would be no reason for either Koppelmans or Zhang to be concerned with the invention of the other. Therefore the combination would not be made except for hindsight.

*Claims 13-14, 39-40, and 63-64 are not dealing with any blocking effect in the present effect, which Zang is trying to reduce by going to the transform space. Thus Zang is not related to the present invention or the invention of Koppleman. Furthermore even when this combination is made it does not allude to or make obvious the invention in claims 13-14, 39-40, and 63-64 which are all concerned with high precision numbers. Thus claims 13-14, 39-40, and 63-64 are allowable over the cited art.*

*The office action further states, " 9. Claims 30, 33-35, 37, 69, and 73-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koppelmans in view of Cheung.*

*In response, applicants respectfully indicate that it was shown above that neither Koppelmans nor Cheung are related to these claims nor to each others inventions,. Neither appears to allude to the other. It appears that this is a combination made using hindsight, which is not allowed.*

*The office action further states, " As to claims 30, 69, Koppelmans does not explicitly disclose rounding and clipping.*

*Cheung, in an analogous environment, discloses the rounding and clipping after IDCT (col. 10, lines 30-46).*

*It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the scheme of Cheung in the method of Koppelmans in order to improve the quality of the images. Doing so would reduce the blocking effect and errors in the output image so that the quality of the method is improved.*

*The office action further states, " As to claims 33-35, 37 and 73 Koppelmans does not explicitly mention the features of editing, audio, electromagnetic, JPEG.*

*However, the examiner takes Official Notice that these features are notoriously well known in the art.*

*It would have been obvious to one having ordinary skill in the art at the time the invention was made to include these features in the method of Cheung and Koppelmans in order to improve the quality of the images.*

*In response, applicants respectfully have indicated that Cheung does what's known to the art using integers in the real domain, and not the elements of these claims.*

*Besides, there is no reason make the combination, and even when this combination is*

made, the combination doesn't allude the present invention claimed in any claims of the present invention. Neither directly manipulate high precision numbers to reduce errors as in these claims.

*As to claims 74-75, Koppelmans discloses a method for digitally processing transform data in the real domain representing a phenomenon, the method comprising:*

*performing an inverse transform of said transform data to the real domain forming high-precision numbers (Fig. 1 element 10);*

*performing a forward transform of the integers forming forward transformed data (Fig. 1 element 3 1).*

*Koppelmans does not explicitly mention converting the high-precision numbers to integers which include out of range data.*

*Cheung, in an analogous environment, discloses the rounding and clipping after IDCT (col. 10, lines 30-46).*

*It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the scheme of Cheung in the method of Koppelmans in order to improve the quality of the images. Doing so would reduce the blocking effect and errors in the output image so that the quality of the method is improved.*

In response, applicants respectfully indicate claim 74 does not use rounding and clipping which introduce errors eliminated by the combined elements claimed. Claim 74-75 is not done by any of the cited art, in that they use clipping and integers which has a result of removing the out of range data. Out of range data doesn't normally fit in a memory with a predetermined number of bits. See references above showing Koppelmans and Cheung using pixel values, (Also see Cheung, col. 1, line 27-32, as in the listed standards.)

*The office action further states, " As to claims 75 and 77, Cheung further discloses manipulating the integers to produce an effect and clipping the integers to an allowed range forming converted data. (Fig. 1).*

*As to claim 76, the discussion is addressed with regard to claim 28.*

In response, applicants respectfully indicate ... ..

The office action further states, " *As to claims 79-83, the claim 79-83 are the corresponding program storage device claims to claim 74-77. The discussions are addressed with regard to claims 74-77.*

In response, besides the arguments presented that the claims of the present invention are not obvious to any of the cited art and/or official notice, applicants respectfully indicate that claim 75- 77 depend on an allowable claim and also allowable.

The office action further states, " 10. *Claims 43, and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koppelmans in view of US 6151361 to Perlman.*

*As to claim 43, Koppelmans does not mention only subset of quantization data produced different transformed data.*

*Perlman, in an analogous environment, discloses the feature (Fig. 2 note that after limiters 209, 210, and 216, only subset contest data formed transformation data).*

*It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the scheme of Perlman in the method of Koppelmans in order to improve the quality of the images . Doing so would reduce the degradation effect and errors in the output image so that the quality of the method is improved.*

The office action further states, "*As to claims 52-54, Perlman further discloses a system as recited in claim 41, wherein the contest data forms an other level of transform-coded data and further comprising: another inverse quantizer, another inverse transformer, another manipulator, another forward transformer, and another quantizer to perform together a similar function on the other level of transform-coded data as performed on the first level transform-coded data (Fig. 1), wherein the effect produced by the first manipulator is a different type of effect from that produced by the other manipulator (Fig. 1 element 106 and 112, col. 3 line 61-col. 4, line 30) and wherein the functions of the first inverse quantizer, first inverse transformer, first forward transformer, and first quantizer, and the respective functions of said another inverse quantizer, another inverse transformer, another forward transformer, and another quantizer are each performed by a same module (Fig. 1).*

The office action further states, " *An analogous argument is addressed with regard to claim 43.*

In response, applicants respectfully indicate there is no reason to make the combination of Koppelmans and Perlman. The office action may not use hindsight to

produce the presently claimed invention. Furthermore, these claims are not related to Koppelmans with or without Perlman. Perlman is not in the real [spatial] domain as in the present invention claimed in claims 43, and 52-54. Koppelmans was shown to be working with integers and there would be no reason for either Koppelmans or Perlman to be concerned with the invention of the other. Therefore the combination would not be made except for hindsight.

Perlman does not even appear to be related to the present claimed invention or the invention of Koppelmans. Furthermore even when this combination is made, these do not allude to or make obvious the invention in *claims 43, and 52-54*, which are all concerned with high precision numbers. See Perlman Figure 3 item 312, round which describe 'standard' decoder using integer output. It is obvious that Perlman will always have the errors removed by the claimed invention. Thus *claims 43, and 52-54* are in themselves allowable over the cited art, and because each is based on an allowable claim.

In response, applicants respectfully indicate that arguments made above show that Perlman is not related to these claims as well. These claims as amended and/or originally submitted all have elements not in or made obvious by the combined references. Also, these claims all ultimately depend upon a claim shown to be allowable over the cited references. Thus claims 43, 52-54, are all allowable.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Please charge any fee necessary to enter this paper to deposit account 09-0468.

It is anticipated that this amendment brings the application to allowance. Favorable action is respectfully solicited.

Respectfully submitted,

By: 

Louis P. Herzberg  
Reg. No. 41,500  
Voice Tel. (914) 945-2885  
FAX. (914) 945-3281

IBM CORPORATION  
Intellectual Property Law Dept.  
P.O. Box 218  
Yorktown Heights, New York 10598



**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims:**

1. (amended) A method for digitally processing transform data representing a phenomenon, the method comprising:  
performing an inverse transform of said transform data to the real domain  
forming high-precision numbers; and  
directly manipulating said high-precision numbers without first converting the high precision number to integers to produce an effect.
46. (amended) A system for digitally processing transform data representing a phenomenon, the system comprising:  
an inverse transformer to perform an inverse transform of the transform data to the real domain using high-precision numbers; and  
a manipulator to directly manipulate the high-precision numbers without first converting to high precision numbers to produce an effect.
48. (amended) A system for digitally processing transform-coded data representing a phenomenon, the system comprising:  
an inverse quantizer to perform an inverse quantization of said transform-coded data to form transform data;  
an inverse transformer to perform an inverse transform of said transform data to the real domain forming high-precision numbers; and  
a manipulator for directly manipulating the high-precision numbers without first converting to high precision numbers to produce an effect.
59. (amended) An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for digitally processing transform data representing a phenomenon, the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect:  
performing an inverse transform of said transform data to the real domain  
forming high-precision numbers; and  
directly manipulating said high-precision numbers without first converting the high precision number to integers to produce an effect.
65. (amended) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for digitally processing transform-coded data representing a phenomenon, said method steps comprising:  
performing an inverse quantization of said transform-coded data forming transform data;

performing an inverse transform of said transform data to the real domain forming high-precision numbers; and 59. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for digitally processing transform data representing a phenomenon, the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect:

performing an inverse transform of said transform data to the real domain forming high-precision numbers; and

directly manipulating said high-precision numbers without first converting the high precision number to integers to produce an effect.